

**From:** [Matthew Loesel](#)  
**To:** [Mark Hansen](#)  
**Cc:** [R6 DWH REOC ESC@EPA](#); [Jon Rauscher](#)  
**Subject:** Re: Fw: Winkler titrations to measure dissolved oxygen  
**Date:** 06/25/2010 12:50 PM

---

I do not, but I am forwarding this to the EU.

Matt Loesel  
US EPA Region 6  
REOC Planning Section  
(817) 271-4586

▼ [Fw: Winkler titrations to measure dissolved oxygen](#)

**Fw: Winkler titrations to measure dissolved oxygen**

**Mark Hansen** to: Matthew Loesel

06/25/2010  
12:29 PM

---

Matthew - do you know anything about this?  
Sent by Blackberry  
Mark Hansen  
Associate Director for Prevention and Response  
Superfund Division  
U.S. EPA Region 6  
Dallas, Texas 75202  
Cell Phone 214 789-2162

▼ [Sam Coleman](#)

----- Original Message -----

**From:** Sam Coleman  
**Sent:** 06/25/2010 12:21 PM CDT  
**To:** Mark Hansen  
**Subject:** Fw: Winkler titrations to measure dissolved oxygen

Let me know the schedule

Samuel Coleman, P.E.  
Director, Superfund Division Region 6  
214 665-6701  
214 789-2016 (cell)  
[coleman.sam@epa.gov](mailto:coleman.sam@epa.gov)

----- Forwarded by Sam Coleman/R6/USEPA/US on 06/25/2010 12:20 PM -----

From: Gregory Wilson/DC/USEPA/US

To: Craig Carroll/R6/USEPA/US@EPA, Sam Coleman/R6/USEPA/US@EPA  
Cc: Dana Tulis/DC/USEPA/US@EPA, Robert Pavia <Robert.Pavia@noaa.gov>  
Date: 06/25/2010 12:09 PM  
Subject: Winkler titrations to measure dissolved oxygen

---

Craig/Sam -

We need BP to start doing Winkler titrations to measure dissolved oxygen on Brooks McCall and Ocean Veritas cruises. The federal JAG workgroup members working on the subsurface dispersant monitoring data met to discuss certain modifications to the sampling procedures for the Brooks McCall and Ocean Veritas, and other vessels. Among the most pressing recommendations from that discussion was to include Winkler titrations to measure dissolved oxygen more accurately on Brooks McCall and Ocean Veritas cruises.

After reviewing data from past Brooks McCall cruises, the federal workgroup members felt there is a strong chance that a depression seen in oxygen sensor data from late May and June that coincided with the CDOM fluorescence peak at 1100-1300 m could be associated with the release of oil, methane, or both. But there are confounding factors associated with the oxygen sensors (SEABIRD SBE-43 Clark polarographic membrane sensor) that prevent a conclusive determination. CTD-O<sub>2</sub> sensors need to be calibrated, sensor drift during cruises needs to be accounted for, and the potential for oil interference needs to be evaluated.

All three of these issues can be addressed with shipboard Winkler titrations. Shipboard titrations are standard practice in oceanographic work. The NOAA Atlantic Oceanographic and Metrological Laboratory has equipment and trained personnel available if necessary to conduct the work. But we first want to know if BP can do this work.

The workgroup recommendation is to:

- Conduct shipboard Winkler titration for a full Brooks McCall/Ocean Veritas cruise in the wellhead area for every cast and every depth where water samples are collected in conjunction with CTD data.
- Conduct shipboard Winkler titration calibration and drift measurements at the start and end of each cruise at each depth with a full water depth cast in clean water. (Once the samples have been fixed they can be stored and shipped to shore based laboratory if onboard analysis is not conducted.)
- Consider designing a cruise track with gridded station locations and time series occupation of stations. The sampling patterns should be adjusted for highest probability of sampling affected waters including different ages since passing the wellhead.
- Consider alternative strategies for triggering bottle samples. These changes could improve delineation of changes in oil movement and changes in oxygen levels.

Please note that the federal workgroup members made other recommendations that we need to address, but the Winkler titration recommendation needs to be implemented ASAP. Please contact me if you need assistance in working out the details to get this implemented.

Thanks,  
Greg

Gregory Wilson, Ph.D.  
U.S. Environmental Protection Agency  
Office of Emergency Management (OEM)  
1200 Pennsylvania Ave., NW (5104A)  
Washington, DC 20460  
cell: (202) 341-1248  
tel: (202) 564-7989  
fax: (202) 564-2625